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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/775,032	01/31/2001	I-Jong Lin	10007845-1	8301

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HEWLETT-PACKARD COMPANY
Intellectual Property Administration
P.O. Box 272400
Fort Collins, CO 80527-2400

EXAMINER

CARTER, AARON W

ART UNIT	PAPER NUMBER
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2625

DATE MAILED: 12/10/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/775,032

Applicant(s)

LIN ET AL.

Examiner

Aaron W Carter

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 May 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,6,8-12 and 16-23 is/are rejected.
- 7) ☒ Claim(s) 3-5,7 and 13-15 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 January 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2,3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Drawings

1. The drawings were received on January 31, 2001. These drawings are accepted.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1, 2, 6, 8, 9, 11, 12 and 16-23 are rejected under 35 U.S.C. 102(e) as being anticipated by US Patent 6,388,654 to Platzker et al. ("Platzker").

As to claims 1, 16 and 20, Platzker discloses the method of locating objects positioned in front of a computer controlled display area, the method comprising:

Displaying an image having corresponding image data in the display area (Fig. 2a, element 24);

Converting the image data into expected captured display area data using a derived coordinate location function and a derived intensity function (column 8, lines 43-57, wherein

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creating a reference image corresponds to converting the image data into expected captured display area data);

Capturing the image in an image capture area to obtain captured data that includes captured display area data corresponding to a predetermined location of the display area in the capture area (Fig. 2a, element 22 and column 11, lines 41-45);

Comparing the expected captured display area data to the captured display area data (column 12, lines 65-67);

Wherein non-matching compared image data locations correspond to locations of the objects (column 12, line 67 – column 13, line 2).

As to claims 2 and 11, Platzker discloses the method as described in claim1, further comprising deriving the coordinate location function by:

Displaying a plurality of calibration images within the display area each including a calibration object having an associated coordinate location within the display area (column 8, lines 43-50);

Capturing a plurality of images of the display area within the capture area each including one of the plurality of calibration images (column 8, lines 55-57);

For each captured image, mapping the coordinate location of the calibration object in the display area to a coordinate location of the calibration object in the predetermined location of the display area in the capture area (column 2, lines 14-23); and

Deriving the location function from the display area to the captured display area from the coordinate location mappings (column 2, lines 21-23).

As to claims 6, 12 and 17, Platzker discloses the method described in claim 2 further comprising deriving the location function from coordinate mappings using a perspective transformation (column 2, lines 12-23).

As to claims 8 and 21, Platzker discloses the method described in claim 1, further comprising comparing the expected captured display area data to the portion of the captured display area data corresponding to the predetermined location of the display area by:

Subtracting pixel values of the expected captured display area data from corresponding pixel values of the captured display area data to obtain difference data at each coordinate location of the display area (column 12, line 65 – column 13, line 2); and

For each coordinate location, comparing the difference data to a threshold noise value to identify the location of the objects in front of the display area (column 12, lines 58-60 and column 13, line 6).

As to claims 9 and 22, Platzker discloses the method described in claim 8, wherein the threshold noise value is dependent on lighting conditions, type of image displayed, and camera quality (column 12, lines 58-60).

As to claim 18, Platzker discloses the system as described in claim 16, wherein the display area is one of a projection screen and a computer monitor and the image capture device is

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one of a digital still camera, a digital video camera, an analog still camera, and an analog video camera (Fig. 2a).

As to claim 19 and 23, Platzker discloses the system as described in claim 16 further comprising a means for predetermining the location of the display area in the capture area by deriving constructive and destructive feedback data from image data corresponding to a plurality of captured calibration images (column 2, lines 14-23).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Platzker as applied to claim 1 above, and further in view of US Patent 4,926,454 to Haendle et al. ("Haendle").

As to claim 10, Platzker discloses the method of claim 1, but neglects to explicitly disclose wherein pixel values at non-matching locations of the captured display area data are set to a first intensity value and the remaining pixel values of the captured display area data are set to a second intensity value. However, Haendle discloses a process of determining a difference image and converting that image from color into black and white (column 1, lines 54-61). Therefore it would have been obvious to one of ordinary skill in the art at the time of the

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invention to take the comparing process of Platzker and convert the pixels of the difference image into two pixel intensity as taught by Haendle, this providing a complete suppression of noise (column 1, lines 50-53).

Allowable Subject Matter

6. Claims 3-5, 7 and 13-15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US Patent 5,729,252 to Fraser discloses an interactive display system.

US Patent 6,359,612 to Peter et al. discloses an interactive display system.

US Patent 6,512,507 to Furihata et al. discloses an interactive display system.

US Patent 5,181,015 to Marshall et al. discloses an interactive display system.

Contact Information

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Aaron W. Carter whose telephone number is 703.306.4060. The examiner can normally be reached by telephone between 8am - 4:30pm (Mon. – Fri.).

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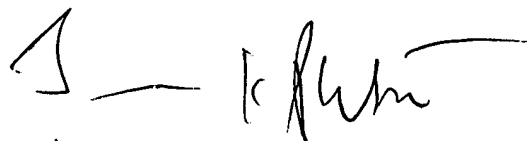
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta can be reached on 703.308.5246. The fax phone number for the organization where the application or proceeding is assigned is 703.872.9306 for regular communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703.306.0377.

Aaron W. Carter
Examiner
Art Unit 2625

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December 4, 2003


Jayanti K. Patel
Primary Examiner